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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,124	09/08/2003	Vito Lambertini	Q76661	8655

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EXAMINER

PADGETT, MARIANNE L

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,124

Applicant(s)

LAMBERTINI ET AL.

Examiner

Marianne L. Padgett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) 16-21 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/28/2005.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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1. Applicants' amendment have greatly improved the clarity of the claims and removed most the 112 second paragraph rejections, however some remain in certain new issues have been introduced. The problem with the oath was effectively corrected by the submission of the new oath.
2. Claims 1-15 are objected to because of the following informalities: applicants have clarified the preamble to better define the three-dimensional structures as "surface projections" of defined dimensions and step (d) now positively produces "the growth of surface projections from the layer", however since this latter introduction of "surface projections" has no necessary antecedents from that recited in the preamble, the dimensions required by the preamble are not necessitated in the body of the claim, which as written can be projections of any size. The language is objected to because the context implies that the claimed dimensions are intended to apply to the surface projections produced by the body of the claim, but does not necessarily require them to correspond to the claimed dimensions, thus it is uncertain if applicants intended those dimensions to apply. Appropriate correction is required.
3. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants have amended claim 1 such that the exposure step (c) reads "exposure of the layer to UV-radiation and control off polymerization by means of variation of the index of refraction of the layer", which is subtly different than what is actually disclosed by the specification on page 6, lines 11-31, which state:

"The system of control of the polymerization of the mixture M by means of UV radiation provides in real-time and for the variation of the index of refraction of the liquid mixture M. in the areas with different degrees of cross-linking... by means of a laser... it is possible to control in real-time to distribution of the intensity in the orders of diffraction resulting from the superposition of the lattice present on the mask... said distribution of the intensity of the orders of diffraction is detected by television camera... the UV radiation after is modulated as it passes through the lattice of the mask 15 and produces in time a modulation of the index of refraction of

the photo polymeric mixture M. This modulation is linked to the different states of cross-linking achieved by the regions illuminated by different intensities." (emphasis added).

Note that as disclosed the UV radiation is the means of control, NOT the variation of the index of refraction in the layer, which is the result of the control of modulated application of the UV radiation to the photopolymeric mixture. Thus the claims as amended have it backwards from the disclosure, such that as phrased the process is not properly enabled and includes New Matter. Further note that claim 7 now states that "the control of polymerization is carried out by detection of the variation of the index of refraction of the layer...", but according to the above quoted lines 22-24 of the specification is the distribution of the intensities of the orders of diffraction that is detected, and that this distribution will result in different indexes of refraction which one might conclude can be deduced from the detection of the intensity of diffraction, but that is not the same thing as detection of the variation of the index of refraction which is now claimed, hence would also appear to have enablement and New Matter problems. The top of page 7 goes on to discuss what appears to be aligning UV radiation (beam F) in the external field generated by the electromagnet 18, but it is a bit confusing as it states "the field lines of beam F", but feel blot it was would generally be expected to refer to the electromagnetic field not the laser, but in any case this does not sub appear to support use of the refractive index as a means of control, but remains disclosure of a combined use of Electro and/or magnetic fields that result in variation of refractive index.

4. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Although most the 112 problems have been corrected, the terms "nanoparticles", "ferrofluids" "binary mask" and "halftone mask" (claims 1 & 10, claim 15, and claim 5, respectively, see section 2 of the 7/8/2005 rejection for details), whose intended meaning in the claims and specification required clarification, have not been adequately defined as the cited references that allegedly contain the definitions were not supplied to the examiner, hence they can not be reviewed for relevance and

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adequacy of their definitions/disclosures. The dates of the literary references are prior art, hence assuming that the terms are adequately defined in these references, submission thereof would remove this rejection, however the "Wikipedia" paraphrased recitation from online has no date listed, and unless it is supplied in printed form & it has a date showing it is prior art (such as the encyclopedias copyright date), it will not be a valid reference. Note that since web sites are neither permanent nor immutable, mere reference of them cannot provide support for anything in a patent application.

5. None of the previously applied art, i.e. Hsieh et al. (6818155 B2), Martin et al. (6391393 B1), McArdle et al. (6180226 B1) & Kostenmaki et al. (5522962) or Phillips et al. (6808806 B2) cited as equivalent to McArdle et al. employ refractive index to control the polymerization as is now explicitly claimed in the independent claim, thus effectively removing the art rejections. However, applicants' original specification does not support this concept, hence these claims cannot be considered allowable (see above 112 first rejection). If the limitation is simply omitted from the claims, the previous art rejections will have to be reinstated, and it is further noted that McArdle et al. or Phillips et al., both of whom employ a combination of patterned radiation curing with magnetic field orientation particles, will in their patterned use of UV radiation inherently produce different refractive indexes within areas with different curing, due to the changes in chemical structure in the areas with differential curing, hence applicants might consider how to distinguish their claims from such an inherent effect, within the scope of what is supported by their specification.

6. Applicant's arguments filed 11/28/2005 and discussed above have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

The IDS of 11/28/2005 is made of record and it is noted that while all the US references pertain to and polymerizable or curable polymeric material containing reflective particulates, all of their processes

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are curing through drawing overtime or application of heat, such that none of them employ UV radiation. Exactly what disclosures be EP reference contains cannot be could be determined without translation, as it is not in English, however it is noted that it appears to be listed only as an X-reference for what are apparatus claims, if the EP claims correspond to those of the US.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->

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direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

2/21/2006



MARIANNE PADGETT
PRIMARY EXAMINER